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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Applicant: Carver et al.)
Serial No.: 10/668,426)
Filed: September 23, 2003) Art Unit 3617
For: Improved Watercraft And)
Waterjet Propulsion System)
Examiner: Sherman D. Basinger)

CERTIFICATE OF MAILING

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APPEAL BRIEF TRANSMITTAL

Dear Sir:

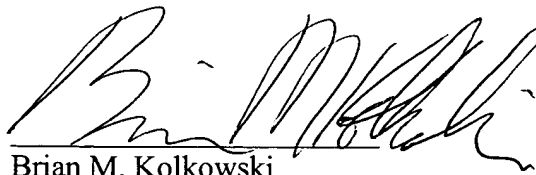
Appellants' submit their brief, in triplicate, for the convenience of the USPTO even though not required under 37 C.F.R. §41.37. Please charge any required fees to our Deposit Account No. 502704. The Commissioner is hereby authorized to charge any deficiency or to credit any overpayment to Deposit Account 502704.

The Appellants' brief corrects those deficiencies cited in the Examiner's Notification of Non-Compliant Appeal Brief. The Appellants' thank the Examiner for his helpful comments.

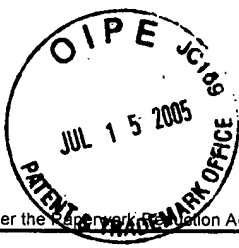
The Appellants' now believe this new Appeals Brief now complies fully complies with 37 C.F.R. §41.37.

Respectfully submitted,

7/13/05
Dated



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Docket No. – Orb021

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

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BRIEF ON APPEAL IN COMPLIANCE WITH 37 CFR §41.37

Dear Sir:

This Brief supports the appeal to the Board of Patent Appeals and Interferences from the final rejection dated December 3, 2004, in the application listed above. Appellant filed a timely Notice of Appeal on April 4, 2005 along with a petition for a 1-month extension of time. The Appellants subsequently filed a Appeal Brief on May 26, 2005. The Appellants received a notification of Non-Compliant Appeal Brief mailed June 21, 2005, and now submit this Brief in response within the required one month time frame.

I. REAL PARTY IN INTEREST

The real party in interest in this appeal is Orbital Research Inc., 4415 Euclid Avenue, Suite 500, Cleveland, Ohio 44103.

II. RELATED APPEALS AND INTERFERENCES

None.

III. STATUS OF CLAIMS

Claims 1-20 stand rejected in this application, and further are the subject of this Appeal.

IV. STATUS OF AMENDMENTS

Appellants filed an amendment after final rejection to the Abstract, which the Examiner indicated in an advisory action dated December 17, 2004 was entered.

V. SUMMARY OF CLAIMED SUBJECT MATTER

The present invention relates to a watercraft with an improved waterjet propulsion system. See page 4, lines 1-2, FIG. 1, Ref. Nos. 10 and 12, and FIG. 2, Ref. Nos. 12 and 30. The present invention further relates to a waterjet propulsion system with an improved steering nozzle design. See page 4, lines 2-3, FIGS. 6-9, Ref. Nos. 50, 70, 72 and 74. Larger watercraft, such as a boat or a ship may often have two or more waterjet propulsors. See page 4, lines 3-10 and FIG. 5, Ref. Nos. 12 and 61.

The improved steering nozzle design incorporates a groove(s) or a channel(s) that is formed or machined into the steering nozzle wall thickness and does not exceed the thickness of the wall. The groove(s) or channel(s) begins at a point between the steering nozzle inlet and exit and ends at a point near or at the exit of the steering nozzle. The groove(s) or channel(s) is recessed into the interior surface of the steering nozzle. See page 4, lines 11-16, FIG. 6-9, Ref. Nos. 50, 70, 72 and 74.

Three of many embodiments of the present invention are claimed. The first being a watercraft comprising a hull; an engine; and a propulsor, the propulsor comprising an

impeller, a water intake, and a steering nozzle, the steering nozzle having an inlet and an exit, and an interior surface and an exterior surface, the steering nozzle further comprising at least one groove in the interior surface beginning near or at the exit and extending a distance along the interior surface toward the inlet. See page 4, lines 17-22, and FIGS. 1-9, Ref. Nos. 10, 12, 20, 22, 30, 46, 50, 70, 72, 74, 78, 80, 82, 94, 96, and 121.

The second being a watercraft comprising a hull; an engine; and a propulsor, the propulsor comprising an impeller, a water intake, and a steering nozzle, the steering nozzle having an inlet and an exit, and an interior surface having an interior surface area and an exterior surface, the steering nozzle further comprising at least one groove in the interior surface beginning near or at the exit and extending a distance along the interior surface toward the inlet, the at least one groove having a groove area wherein when the steering nozzle is sectioned in half at least 75% of the groove area can be located in 50% of contiguous interior surface area. See page 4, line 23 to page 5, line 3, and FIGS. 1-9, Ref. Nos. 10, 12, 20, 22, 30, 46, 50, 70, 72, 74, 78, 80, 82, 94, 96, and 121.

The third being a steering nozzle for a waterjet propulsion system comprising an inlet and an exit; an interior surface and an exterior surface; and at least one groove beginning at or near the exit and extending a distance along the interior surface toward the inlet. See page 5, lines 4-7, and FIGS. 1-9, Ref. Nos. 12, 50, 70, 72, 74, 78, 80, 82, 94, and 96.

VI. GROUND OF REJECTION TO BE REVIEWED ON APPEAL

Issues presented for consideration in this Appeal are:

A. 35 U.S.C. §102(b)

Claims 1, 3-7 and 9-20 stand rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent 6,193,571 (Burg).

B. 35 U.S.C. §103-First Rejection

Claims 2 and 8 stand rejected under 35 U.S.C. §103 as being obvious over U.S. Patent 6,193,571 (Burg) in view of U.S. Patent 5,603,644 (Kobayashi).

C. 35 U.S.C. §103-Second Rejection

Claims 11-13 and 17-20 stand rejected under 35 U.S.C. §103 as being obvious over U.S. Patent 6,193,571 (Burg).

VII. ARGUMENT

A. Whether Claims 1, 3-7 and 9-20 are patentable under 35 U.S.C. §102(b) as being novel over U.S. Patent 6,193,571 (Burg).

Claims 1, 3-7 and 9-20 stand rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent 6,193,571 (Burg).

Anticipation requires the disclosure in a single prior art reference of each element of the claim under consideration. *W.L. Gore & Assocs. v. Garlock*, 721 F.2d 1540, 202 USPQ 202 (Fed. Cir. 1983). It is not enough that the prior art reference disclose all of the claimed elements in isolation, but rather anticipation requires the presence in a single prior art reference disclosure of each and every element of the claimed invention, arranged as in the claim. *Lindemann Maschinenfabrik GmbH v. American Hoist &*

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Derrick Co., 730 F.2d 1452, 221 USPQ 481 (Fed. Cir. 1984). Further, anticipation requires that the prior art reference must be enabling, thus placing the allegedly disclosed matter in the possession of the public. Akzo N.V. v. U.S. Int'l Trade Comm'n, 808 F.2d 1471, 1 USPQ 2d. 1241 (Fed. Cir. 1986).

A1. Whether Claims 1, 3-7 and 9-13 are patentable under 35 U.S.C. §102(b) as being novel over U.S. Patent 6,193,571 (Burg).

The Applicants respectfully submit that the Examiner has not established a prima facie case of anticipation.

Burg does not describe a watercraft comprising a hull, an engine and a propulsor, but rather specifically addresses only a propulsor. The Applicant's have raised this issue of these missing elements from Claims 1-13, which the Examiner is apparently unwilling to address in some fashion.

The Examiner points to the nozzle in Figure 11 of the Burg reference as anticipating the steering nozzle element of the Appellant's invention.

In addition, the nozzle in Burg and the Claimed steering nozzle are not the same. With respect to the propulsor in independent Claims 1, and 7, Burg does not provide a steering nozzle as claimed by the Applicants, but only a non-movable, static discharge or convergent nozzle, which does not operate to steer the watercraft. Furthermore, the Examiner even admits that the grooves themselves in the convergent nozzle of Burg are used as a recess for the movement of trim elements (and therefore the grooves are not directly used as a means to control fluid flow). Burg in fact teaches away from using a steering nozzle. In column 7, lines 6-11 Burg teaches that "Major advantages of this inventive approach nozzle [the nozzle disclosed in Burg] over a fully articulated [or

steering] nozzle [the nozzle claimed by the Applicants] are that: 1) construction is very simple, 2) control system and actuators are less complicated, and 3) there is little or no back flow leakage. The back flow leakage associated with an articulated [or steering] nozzle results in a loss of efficiency.” Burg instead suggests the use of a control flap or rudder element to direct the discharge of the convergent nozzle or steer, not a steering nozzle [or fully articulated nozzle] as claimed.

A2. Whether Claims 14-20 are patentable under 35 U.S.C. §102(b) as being novel over U.S. Patent 6,193,571 (Burg).

The Applicants respectfully submit that the Examiner has not established a prima facie case of anticipation.

The Examiner points to the nozzle in Figure 11 of the Burg reference as anticipating the steering nozzle element of the Appellant’s invention.

In addition, the nozzle in Burg and the Claimed steering nozzle are not the same. With respect to the propulsor in independent Claim 14, Burg does not provide a steering nozzle as claimed by the Applicants, but only a non-movable, static discharge or convergent nozzle, which does not operate to steer the watercraft. Furthermore, the Examiner even admits that the grooves themselves in the convergent nozzle of Burg are used as a recess for the movement of trim elements (and therefore the grooves are not directly used as a means to control fluid flow). Burg in fact teaches away from using a steering nozzle. In column 7, lines 6-11 Burg teaches that “Major advantages of this inventive approach nozzle [the nozzle disclosed in Burg] over a fully articulated [or steering] nozzle [the nozzle claimed by the Applicants] are that: 1) construction is very simple, 2) control system and actuators are less complicated, and 3) there is little or no

back flow leakage. The back flow leakage associated with an articulated [or steering] nozzle results in a loss of efficiency.” Burg instead suggests the use of a control flap or rudder element to direct the discharge of the convergent nozzle or steer, not a steering nozzle [or fully articulated nozzle] as claimed.

A3. Whether Claims 11-13 and 17-19 are patentable under 35 U.S.C. §102(b) as being novel over U.S. Patent 6,193,571 (Burg).

The Applicants respectfully submit that the Examiner has not established a prima facie case of anticipation.

The Examiner stated that with respect to Claims 11-13 and 17-19 that because the Applicant has not defined within the claims the meaning of 0.001r, 1.5r, 0.002c, 0.4c, 0.01w and 3w that the grooves of Burg are felt to anticipate these claims.

It is not clear what argument the Examiner was intending to make with respect to these claims. A claim is not required to provide a written description of the invention, but rather the specification is required to describe the invention so that “persons of ordinary skill in the art will recognize from the disclosure” that appellants invention contain those limitations. In re Wertheim, 541 F.2d 257, 191 USPQ 90 (C.C.P.A. 1976).

The Applicants defined the meaning of the terms 0.001r, 1.5r, 0.002c, 0.4c, 0.01w and 3w in the description of the specification, see page 10, line 25 to page 11, line 27. The Applicants submit if the terms are specifically defined in the specification they do not need to be defined in the claims. Further, the Applicants respectfully submit that Burg does not provide a steering nozzle with at least one groove having these particular characteristics.

A4. Whether Claim 20 is patentable under 35 U.S.C. §102(b) as being novel over U.S. Patent 6,193,571 (Burg).

The Applicants respectfully submit that the Examiner has not established a *prima facie* case of anticipation.

The Examiner stated that with respect to Claim 20 that the addition of grooves to the sides of the nozzle for steering would anticipate at least four grooves – two for trim and two for steering.

Column 7, lines 11-14 of Burg doesn't teach "the addition of grooves 46 to the sides of the [discharge] nozzle". The Applicants respectfully submit nowhere in Burg is it taught to provide a steering nozzle comprising at least four grooves nor any other type of nozzle with at least four grooves for that matter. Burg does state in column 7, lines 11-15 that "it is possible to also use control flap like elements on either side of a discharge [convergent] nozzle and/or to use a rudder element disposed in the discharge jet". The Applicants submit that the words either side, apparently teaches putting the flaps on the outside of the convergent nozzle of Burg, while in apparently teaches putting a rudder element inside the convergent nozzle.

For at least the reasons given above, Appellants assert that the Examiner has failed to make a *prima facie* case of anticipation, and respectfully request that the Board reverse §102 rejection and find Claims 1, 3-7 and 9-20 allowable.

B. Whether Claims 2 and 8 are patentable under 35 U.S.C. §103 as being nonobvious over U.S. Patent 6,193,571 (Burg) in view of U.S. Patent 5,603,644 (Kobayashi).

The Examiner has not established a prima facie case of obviousness. Neither Burg nor Kobayashi describe or teach of a steering nozzle with the features of the claimed invention. In addition, the Examiner has not pointed out or given any reason, suggestion, or motivation from the references cited as a whole for the person of ordinary skill in the art to have combined or modified the references.

Obviousness cannot be established by combining the teachings of the prior art to produce the claimed invention, absent some teaching suggestion or incentive supporting the combination. In re Geiger, 815 F.2d 686, 2 USPQ 2d 1276 (Fed. Cir. 1987). In addition, the suggestion or motivation must have existed before the date of the invention. It is impermissible to use the claimed invention as an instruction manual or “template” to piece together the teachings of the prior art so that the claimed invention is rendered obvious. The Examiner cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention. In Re Fritch, 972 F.2d 1260, 23 USPQ 2d 1780 (Fed. Cir. 1992).

The Examiner has stated that at the time the invention was made a person of ordinary skill in the art to which the subject matter pertains would have provided the boat in Burg with two propulsors both similar to the one propulsor of Burg. The Applicants requested since the Examiner could not point to a reason, suggestion, or motivation in the references for such combination that it must have been in the personal knowledge of the Examiner, and requested that the Examiner provide an affidavit detailing as

specifically as possible such reason, suggestion or motivation as per 37 CFR §1.104 (d) (2).

Section 1.104 states in part that “When a rejection in an application is based on facts within the personal knowledge of an employee of the Office, the data shall be as specific as possible, and the reference must be supported, when called for by the applicant, by the affidavit of such employee, and such affidavit shall be subject to contradiction or explanation by the affidavits of the applicant or other persons.”

This is further supported by *In re Pardo*, 684 F.2d 912, 214 USPQ 673, 677 (CCPA 1982) where the court stated “Assertions of technical facts in areas of esoteric technology must always be supported by citation to some reference work recognized as standard in pertinent art and the appellant be given, in the Patent Office, the opportunity to challenge the correctness of the assertion or the notoriety or repute of the cited reference....Allegations concerning specific “knowledge” of the prior art, which might be peculiar to a particular art should also be supported and the appellant similarly given the opportunity to make a challenge.”

The Examiner was apparently unwilling to address this request by the Applicants, and therefore the Applicants were not given the opportunity to challenge the correctness of the Examiner’s assertion of the motivation of one skilled in the art prior to the claimed invention.

For at least the reasons given above, Appellants assert that the Examiner has failed to make a *prima facie* case of obviousness, and respectfully request that the Board reverse §103 rejection and find Claims 2 and 8 allowable.

C. Whether Claims 11-13 and 17-20 are patentable under 35 U.S.C. §103 as being obvious over U.S. Patent 6,193,571 (Burg).

The Examiner has not established a prima facie case of obviousness. Burg does not describe or teach of a steering nozzle with the features of the claimed invention.

The Examiner has stated that at the time the invention was made a person of ordinary skill in the art to which the subject matter pertains would have provided grooves of Burg with the claimed length, width and spacing as defined in the Applicant's claims. The Applicants requested that because it was clear this motivation was in the personal knowledge of the Examiner, and that the Examiner provide an affidavit detailing as specifically as possible such reason, suggestion or motivation as per 37 CFR §1.104 (d) (2).

Again, Section 1.104 states in part that "When a rejection in an application is based on facts within the personal knowledge of an employee of the Office, the data shall be as specific as possible, and the reference must be supported, when called for by the applicant, by the affidavit of such employee, and such affidavit shall be subject to contradiction or explanation by the affidavits of the applicant or other persons."

This is further supported by *In re Pardo*, 684 F.2d 912, 214 USPQ 673, 677 (CCPA 1982) where the court stated "Assertions of technical facts in areas of esoteric technology must always be supported by citation to some reference work recognized as standard in pertinent art and the appellant be given, in the Patent Office, the opportunity to challenge the correctness of the assertion or the notoriety or repute of the cited reference....Allegations concerning specific "knowledge" of the prior art, which might be

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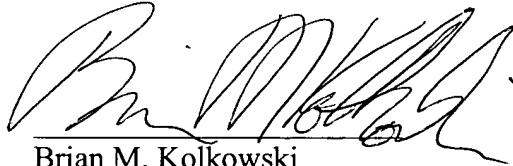
peculiar to a particular art should also be supported and the appellant similarly given the opportunity to make a challenge.”

The Examiner was apparently unwilling to address this request by the Applicants, and therefore the Applicants were not given the opportunity to challenge the correctness of the Examiner’s assertion of the motivation of one skilled in the art prior to the claimed invention.

For at least the reasons given above, Appellants assert that the Examiner has failed to make a *prima facie* case of obviousness, and respectfully request that the Board reverse §103 rejection and find Claims 11-13 and 17-20 allowable.

Respectfully submitted,

7/13/05
Dated



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CLAIMS APPENDIX TO BRIEF ON APPEAL

The claims on appeal are as follows:

1. (original) A watercraft comprising:
a hull;
an engine; and
a propulsor, the propulsor comprising an impeller, a water intake, and a steering nozzle, the steering nozzle having an inlet and an exit, and an interior surface and an exterior surface, the steering nozzle further comprising at least one groove in the interior surface beginning near or at the exit and extending a distance along the interior surface toward the inlet.
2. (original) The watercraft in claim 1, wherein the watercraft comprises two or more propulsors.
3. (original) The watercraft in claim 1, wherein the steering nozzle comprises at least two grooves.
4. (original) The watercraft in claim 1, wherein the groove has a surface area, the interior surface of the steering nozzle has a total interior surface area, and when the steering nozzle is sectioned at least about 75% of the groove area is located in any contiguous half of the total interior surface area of the steering nozzle.
5. (original) The watercraft in claim 1, wherein the groove comprises at least two sides with a distinct angle between the two sides.
6. (original) The watercraft in claim 4, wherein the groove comprises at least two sides with a distinct angle between the two sides.
7. (original) A watercraft comprising:
a hull;
an engine; and

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a propulsor, the propulsor comprising an impeller, a water intake, and a steering nozzle, the steering nozzle having an inlet and an exit, and an interior surface having an interior surface area and an exterior surface, the steering nozzle further comprising at least one groove in the interior surface beginning near or at the exit and extending a distance along the interior surface toward the inlet, the at least one groove having a groove area wherein when the steering nozzle is sectioned at least about 75% of the groove area is located in any contiguous half of the total interior surface area of the steering nozzle.

8. (original) The watercraft in claim 7, wherein the watercraft comprises two or more propulsors.
9. (original) The watercraft in claim 7, wherein the steering nozzle comprises at least two grooves.
10. (original) The watercraft in claim 7, wherein the groove in the steering nozzle comprises at least two sides with a distinct angle between the two sides.
11. (original) The watercraft in claim 7, wherein the groove in the steering nozzle has a length and the length of the groove is between from about 0.001r to about 1.5r.
12. (original) The watercraft in claim 11, wherein the groove in the steering nozzle has a width, and the width of the groove at its widest point is between from about 0.002c to about 0.4c.
13. (original) The watercraft in claim 12, wherein the steering nozzle comprises at least two grooves, the at least two grooves has a spacing between the at least two grooves, and the spacing between the at least two grooves is between from about 0.01w to about 3w at their nearest point.
14. (original) A steering nozzle for a waterjet propulsion system comprising:

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an inlet and an exit; an interior surface and an exterior surface; and at least one groove beginning at or near the exit and extending a distance along the interior surface toward the inlet.

15. (original) The steering nozzle in claim 14, comprises at least two grooves.
16. (original) The steering nozzle in claim 14, wherein the groove comprises at least two sides with a distinct angle between the two sides.
17. (original) The steering nozzle in claim 14, wherein the groove has a length and the length of the groove is between from about $0.001r$ to about $1.5r$.
18. (original) The steering nozzle in claim 17, wherein the groove has a width, and the width of the groove at its widest point is between from about $0.002c$ to about $0.4c$.
19. (original) The steering nozzle in claim 18, wherein the steering nozzle comprises at least two grooves, and the spacing between the at least two grooves is between from about $0.01w$ to about $3w$ at their nearest point.
20. (original) The steering nozzle in claim 19, comprising at least four grooves.